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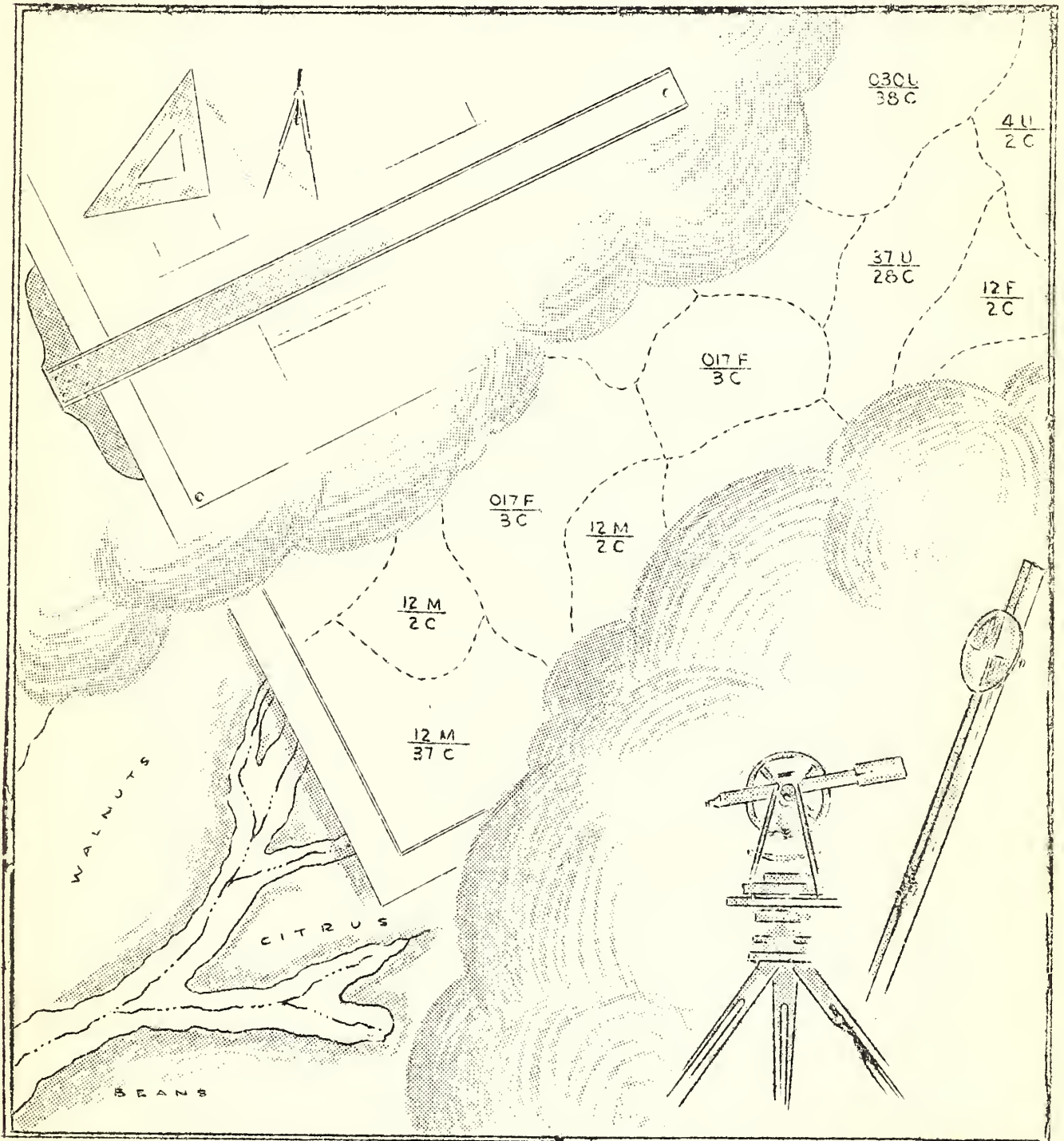
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# CALIFORNIA EROSION DIGEST

VOL. I - NO. 12.

SEPT. '35



SOIL CONSERVATION SERVICE  
U. S. DEPT. OF AGRICULTURE



## California Erosion Digest

Soil Conservation Service

U.S. Department of Agriculture

(Issued monthly at the Regional  
Office, Santa Paula, California)

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Volume 1 - No. 12

September 1935

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### "CEREMONIES MARK OPENING OF NEW CAMP"

(From. Santa Ana Daily Register, Friday Evening, September 27, 1935)

"In the presence of divisional army chiefs, social Conservation Service heads, Orange county officials and some 200 United States veterans engaged in soil conservation work, Camp El Toro, of the United States Soil Conservation Service and Civilian Conservation Corps, yesterday was formally dedicated to the work of saving the soil for Orange county farmers.

H. E. Reddick, regional director in charge of soil conservation work for California and Nevada, formally gave the camp a start on its work of service. "The conservation of the soil of our country," he said, "is the start of all conservation work." Of the 15 counties in the United States which give the richest returns to farmers, he stated, 11 are in California, with Orange county ranking near the top.

### DISTRICT COMMANDER TALKS

Major L. A. Walton, March Field, district commander for the Civilian Conservation Corps, was the first speaker on the program of the dedicatory services, explaining the purpose of the Soil Conservation Service and of the Civilian Conservation Corps. He gave a plea for public support of the camps and projects which are a part of the conservation work, stating that the public bodies and the public should work together for the greater good of all.

Lieutenant H. R. Crosby, Jr., welfare department, who was acting as master of ceremonies, then introduced acting Orange county District Attorney W. F. Menton, who in a short talk dedicated the new camp to the public, and expressed the gratitude and appreciation of the people of the county for the establishment of the camp. George N. Whiting, El Toro rancher, expressed the appreciation of the people of the immediate neighborhood for the establishment of the camp.

Following the address of Menton, the colors were formally raised for the first time over the camp, as the SERA band played the "Star Spangled Banner."



Postmaster Terry Stephenson also spoke, outlining the history of the El Toro neighborhood, stating that its history dates back to the beginnings of the story of America. He traced the course of time in the El Toro district from the days of the Spaniards to today, when he said "this locality, through this camp, is making history again."

#### SUPPORT PLEDGED

Guerdon Ellis, supervisor of the Cleveland National forest, pledged the support of the United States Forestry Department in assisting the soil conservation work.

Following the formal program of speaking, retreat and inspection of the veteran's corps was held, and the entire party entertained at dinner in the camp dining room. Here all guests were introduced by Lieut. Crosby.

Among those present were the board of supervisors of Orange county, and numerous subsidiary county officials, as well as a host of prominent army officers.

Among prominent army men were Lieutenant W. M. Rubin, j. g., U.S.N.; Captain Carol D. Hudson, district transportation officer; Captain E. N. Clark, property officer; Dr. Paul J. Ritter, district educational coordinator; Captain Phillip M. Burges, commanding officer of the Temecula veterans camp, and Captain Will Thomas, commanding officer of the El Toro camp.

Hugh Thompson, Villa Park, and James Mochlin, Huntington Beach, represented the Orange county planning commission."

#### HUGE GRAZING CONTROL DEMONSTRATION STARTED IN NEVADA BY SCS

Nevada stockmen are watching with intense interest the fencing of the 20,000 acre Soil Conservation Service demonstration project in Lincoln County, near Panaca, by over 200 CCC boys. Livestock will be kept off the area for a sufficient length of time for the reestablishment and increase of native grasses, after which the carrying capacity of the range will be determined. The project is located on Government land and is under the direction of the California-Nevada regional office at Santa Paula.

Over-grazing has been the main cause of the reduction of forage on the range country and soil erosion has followed. Once the land has been denuded of its cover, run-off from rain storms swoops off the surface soil and in some cases causes severe gullyng. A recent erosion survey of Nevada showed that over 18,000,000 acres had lost much of the topsoil, and 46,000,000 acres had been severely affected by gullyng.



COURSES IN SOIL EROSION CONTROL TO BE GIVEN CCC ENROLLEES BY SCS

- by -

Harry H. Hyatt, Assistant Agriculturist.

With three new CCC camps already in operation, and six more scheduled to get underway the first of October, in addition to the three which have been engaged in soil erosion control work for over a year, the Division of Education and Information will expand its educational program among the enrollees.

Heretofore a member of this division has visited each camp twice a month and given one of a series of illustrated talks on soil conservation. At the beginning of the series the general problem of soil erosion was outlined and in the later talks specific methods of controlling soil erosion were described. The various phases of the subject were covered in a period of from five to six months. As this period coincided roughly with the enrollment period, each enrollee gained a working knowledge of the subject. In addition to the soil conservation material two or more reels of travel and industrial films were shown at each meeting. These films were obtained from transportation or public service companies and various manufacturers.

Time permitting, this division is planning to enlarge the above program which has proved practical. Additional slides have been prepared illustrating the problem of soil erosion and the various means of control. New films will be shown. Enrollees can be assured of a well-rounded program twice a month.

It is believed that a number of enrollees in each camp will be interested in gaining a more thorough understanding of soil conservation than is to be derived from the short evening talks. For this group a class in soil conservation will be scheduled at a convenient hour preceding the evening program.

For those enrollees who attend the Soil Conservation class and others who wish to gain a more comprehensive knowledge of the subject, a file of bulletins for reference will be placed in each camp library.

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THE COVER

This month's cover is symbolic of the various activities of the Soil Conservation Service. Agricultural engineering is represented by the transit and T-square; soils and agronomy by the type maps.



## YOUTHS IN LOUISIANA LEARN SOIL CONSERVATION

### "TEACHING LAND THRIFT TO HIGH SCHOOL BOYS"

"Realizing that the high-school boys of today will be the farmers of tomorrow, and that the inculcation of principles of land preservation in the minds of the students will be definitely reflected in the farming practices of the future, school officials and directors at Minden, La., have arranged that practical class instruction in erosion-control work be given to every high-school youth in Webster Parish.

Supt. E. S. Richardson and the 10 high-school principals of the parish have agreed to excuse high-school boys from their regular studies for  $3\frac{1}{2}$  days a month in order that they may take advantage of classes conducted by department heads of the local project."

#### - Varied Experience -

"A. H. Bean, soils expert, and J. W. Hammett, in charge of game conservation and rodent control, will explain and demonstrate the work of their departments. A. C. Morris, agronomist, and F. S. Edmiston, chief engineer, will direct the students in the actual work of building a terrace, constructing a terrace outlet and varied types of dam structures in gully control. In addition, the principle of strip-cropping will be explained and a strip-crop planted by the boys.

"W. E. Dee, chief of range management, will put in approximately an acre of pasture, again having the high-school boys do the actual work. A. S. McKean, forester, will explain his phase of the work and the value of trees and forest areas to the farmer, and have the school boys plant a small forest tract.

"The plots upon which the program will be carried out are so located that students can follow up the first work and see from day to day the advantages of the program being put into use on the farms of this area.

"We want every high-school boy in the parishes where we may operate to have first-hand information regarding the type of work which we are putting into practice in this section", says H. M. Mimms, acting regional director. "Our work with the schools of Webster Parish was so successful and was met with such enthusiasm by the pupils, the parents, and the teachers that we expect to carry on during the next school year on an enlarged scale. There is no better method of sending our practices and plans of proper land utilization and preservation into the farm homes of our area than through the high-school boys, most of whom already live on farms."

EDITORIAL NOTE: The foregoing article is from the August issue of SOIL CONSERVATION, the official organ of the Soil Conservation Service, U.S. Department of Agriculture, Washington. Educational plans for high-schools in California and Nevada are being developed by the California-Nevada regional office of the SCS. It is possible that studies in soil conser-

vation will be incorporated in courses given by agricultural instructors in the high schools of these states. It is just as necessary for the future farmers of the west to understand the conservation of the soil, as it is to know how to cope with insect and weed pests.

### STRIP-CROPPING

- by -

Paul B. Dickey, Assistant Agronomist

"Strip-cropping" is a term which has been used in various parts of the country to refer to several similar but distinct practices. The resulting confusion has recently been eliminated by giving these practices specific names. "Strip-cropping" is retained as a collective term referring to these erosion control practices as a whole.

The term, "crop-stripping" is applied to the practice of planting wide, alternate strips of close-growing and clean-cultivated crops on the contour of sloping fields. A variation of this is "field-stripping." In this case the strips are straight and of the same width throughout, being laid across the general slope but not following the contour.

A rotation of the strips of clean-cultivated and close-growing crops is called "rotation strip-cropping." By this means the benefit of the close-growing crop is eventually spread over the whole field. If rotation is not practiced, bench terraces will gradually develop.

These cropping practices are of great value on gentle slopes and deep, permeable soils, where they are often used in place of terraces. The close-growing crop slows down the velocity of the run-off, causing the silt to be deposited and giving the water time to soak into the ground. Crop strips are often put in pending the construction of terraces to keep the land covered and at the same time avoid the necessity of removing part of the clean-cultivated crop in order to terrace.

"Buffer" or "spreader" strips are narrow bands of erosion-resisting vegetation, either commercial crops or otherwise, which are not rotated. These have been used for many years in California in contour planted orchards. A spreader strip is left or planted below each row of trees to catch and hold the soil eroded and moved by cultivation from above the tree rows. Bench terraces are thus developed with relatively flat, cultivated treads and steep, vegetated risers. Buffer strips have recently been used above grade ditches. The ditch carries off the excess water while the buffer strip serves to catch soil eroded from the clean-cultivated land above.

In many of the eastern projects where diversified farming is practiced, the use of rotation strip crops generally requires only a rearrangement of the crops already being grown. On California projects,

where emphasis is largely placed on a single, high value crop, the use of crop-strips may involve some decrease in immediate returns. Furthermore, many of the soils absorb water slowly or in limited quantities, so that, although the velocity of run-off is reduced sufficiently to cause deposition of the suspended material the amount of run-off is not greatly reduced. However, the value of the rotation in building up the humus content of the soil with consequent increase in absorptive capacity and in crop yields is of considerable importance regardless of the effectiveness of the strips in controlling erosion.

#### SUB-SOILING AND HOLE-DIGGING TO INCREASE MOISTURE PENETRATION

- by -

Anson Averell, Junior Soil Surveyor.

Soils act as reservoirs to retain or provide water for plant use but their capacity has definite limits, varying with different soils, both as to the total quantity stored and the rapidity with which they fill to capacity. In some soils a tight, compact, layer is developed (by the plow packing the soil when it is wet) which resists the penetration of moisture and it is for the correction of this condition that the practice of sub-soiling is generally used.

This operation is accomplished by the use of a special implement, a sub-soiler, which is essentially a cutting instrument curved to penetrate the soil in the same manner as a plowshare, but with a curved shaft or shank substituted for the mold board. It cuts through the plowsole or culturally compacted layer and breaks up the formation, allowing the water to penetrate to increased depths. Depending on the thickness of the plowsole the sub-soiler commonly breaks up the soil to depths up to ten to twenty inches. Furrows are three to four feet apart.

In many instances sub-soiling to greater depths has been used to correct unfavorable subsoil conditions, such as cemented hard pans and dense clay subsoils. Unless it penetrates below this impervious layer, however, a perched water table usually develops close to the surface with disastrous consequences to crop production. Sub-soiling to the necessary depth in these instances is costly and in only a few cases can it be justified on a dollar and cents basis.

On the recent immature deeply permeable soils such as Yolo and Panocho the soil drainage is already too well developed to be benefited by sub-soiling. However, it is on these soils that hole-digging can be used.

Hole-digging consists of digging a series of basin-like holes by use of a specially designed implement built of furrowing shovels which are intermittently raised and lowered into the soil. Size and depth of the holes depends on the size and spacing of the furrowing shovels. Number of holes per acre will run from 10,000 to 20,000, and each basin will hold from two to five gallons of water. On some fields in the Las Posas where it has been used run-off, with its con-

sequent soil washing, has been practically eliminated. Hole-digging increases the time for percolation, thereby increasing the amount of moisture absorbed.

A practice which leads to the formation of a compacted layer, or plowsole, is the cultivation of the land after a rain or cultivation as soon as the surface has dried. The plowsole is not formed in soils that are allowed to dry out sufficiently before they are cultivated. To avoid this formation tillage should be delayed until the soil at depths of six to eight inches below the surface will not "ball" when worked in the hand.

The Soil Conservation Service has two hole-digging machines which can be made available to cooperators in the Las Posas demonstration project.

SAVE  
THE  
SOIL!

"KEEP THE RAINDROP  
WHERE IT FALLS"